

## Health Advisory:

### How To Handle Situations Involving Suspicious Powdery Substances (Updated)

May 16, 2017

This document will be updated as new information becomes available. The current version can always be viewed at <http://health.mo.gov/emergencies/ert/alertsadvories/index.php>.

The Missouri Department of Health & Senior Services (DHSS) is now using 4 types of documents to provide important information to medical and public health professionals, and to other interested persons:

**Health Alerts** convey information of the highest level of importance which warrants immediate action or attention from Missouri health providers, emergency responders, public health agencies, and/or the public.

**Health Advisories** provide important information for a specific incident or situation, including that impacting neighboring states; may not require immediate action.

**Health Guidances** contain comprehensive information pertaining to a particular disease or condition, and include recommendations, guidelines, etc. endorsed by DHSS.

**Health Updates** provide new or updated information on an incident or situation; can also provide information to update a previously sent Health Alert, Health Advisory, or Health Guidance; unlikely to require immediate action.

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Health Advisory  
May 16, 2017

FROM: RANDALL WILLIAMS, MD  
DIRECTOR

SUBJECT: **How To Handle Situations Involving Suspicious  
Powdery Substances (Updated)**

Incidents involving the discovery of a suspicious powdery substance, often in or on a letter or package, continue to occur. Such a discovery often results in concern that the material may contain anthrax spores, ricin, or some other hazardous biological, chemical, or radioactive substance. In almost all instances, the powdery material does not contain any harmful substance and poses no risk to those who have contact with it. However, on very rare occasions, the material has been found to be hazardous. Consequently, whenever a suspicious powdery substance is encountered, reasonable steps need to be taken immediately to minimize exposure and facilitate evaluation of the incident by law enforcement officials, as proper assessment, examination, and handling is critical to minimize any threat to public health from any explosive component or materials, poison chemicals or gases, disease organisms, or ionizing radiation. If law enforcement officials believe the incident represents a true potential threat and that testing of the substance is indicated, they should contact the Missouri Department of Health and Senior Services (DHSS) for consultation, referral as may be needed, and testing services. If necessary, DHSS and local public health agency personnel can also provide assistance to help ensure that all potentially exposed persons are identified and managed appropriately.

Following the anthrax attacks in 2001, protocols were developed for situations where a suspicious powdery substance suspected to contain anthrax spores is discovered. The basic approach described in these documents is valid not only for potential exposures to anthrax spores, but also for exposures to ricin and other hazardous biological, chemical, or radioactive materials that could be disseminated via powdery substances. This Health Advisory replaces the July 25, 2013, Health Advisory entitled "How To Handle Situations Involving Suspicious Powdery Substances (Updated 2013)," and provides updated guidance for handling incidents involving such substances.

Questions regarding laboratory testing issues should be directed to the Missouri State Public Health Laboratory (MSPHL) at 573-751-3334, 573-522-1444, or 800-392-0272 (24/7).

Questions regarding this protocol, or potential bioterrorist-associated diseases such as anthrax or ricin poisoning, should be directed to the department's Bureau of Communicable Disease Control and Prevention at 573-751-6113 or 800-392-0272 (24/7).

Questions regarding chemical or radiological issues should be directed to the department's Bureau of Environmental Epidemiology at 573-751-6102, or 800-392-0272 (24/7).

## **IF A SUSPICIOUS POWDERY SUBSTANCE IS ENCOUNTERED, DO NOT PANIC – KEEP THE ACTUAL RISK OF THE SITUATION IN PERSPECTIVE**

1. It is important to remember that in almost all instances in which a letter or package has been found to contain a suspicious powder, no hazardous substance has been identified. (**Note: the term “hazardous substance,” when used in this document, refers to any biological, chemical, or radioactive substance which could cause disease in those exposed to it.**) At the same time, it is wise to handle each situation of this type in a careful, reasonable manner, as described below.
2. Incidents involving a specific threat and/or the discovery of a suspicious powdery substance will be carefully investigated by law enforcement personnel and, if necessary, by public health officials. One of the first steps to take in such a situation is to immediately contact the local law enforcement agency.
3. If, in the unlikely event that anthrax spores are found to be present, and it is believed that specific persons may have inhaled these spores, these persons will be offered preventive (prophylactic) treatment with antibiotic medication and anthrax vaccine to significantly decrease their chances of becoming ill. It is noteworthy that following the 2001 anthrax attacks, over 10,000 individuals who may have been exposed to anthrax spores were placed on prophylactic antibiotics, and no cases of anthrax occurred among these persons. (For more information on anthrax, see <http://health.mo.gov/emergencies/ert/med/anthrax.php>.)
4. In the similarly unlikely event that ricin is discovered, exposed individuals will be identified and followed for the development of signs of illness (no specific preventive treatment exists). If such signs appear, these persons can then quickly be provided appropriate supportive medical care. (For more information on ricin, see <http://health.mo.gov/emergencies/ert/med/ricin.php>.)
5. It is also important to remember that persons with inhalational anthrax (the most dangerous form of the disease), or with ricin poisoning, do not transmit the disease to other persons. Person-to-person transmission of cutaneous anthrax has been reported, but is very rare and can be prevented.

### **Suspicious Letter or Package**

#### **What kind of mail should be considered suspicious?**

Some characteristics of suspicious packages and envelopes include the following:

- Inappropriate or unusual labeling
  - Excessive postage
  - Handwritten or poorly typed addresses
  - Misspellings of common words
  - Strange return address or no return address
  - Incorrect titles or title without a name
  - Not addressed to a specific person
  - Marked with restrictions, such as “Personal,” “Confidential,” or “Do not x-ray”
  - Marked with any threatening language
  - Postmarked from a city or state that does not match the return address
- Appearance
  - Powdery substance felt through or appearing on the package or envelope
  - Oily stains, discolorations, or odor
  - Lopsided or uneven envelope
  - Excessive packaging material such as masking tape, string, etc.
- Other suspicious signs
  - Excessive weight
  - Ticking sound
  - Protruding wires or aluminum foil

If a package or envelope appears suspicious, **DO NOT TOUCH OR OPEN IT.**

#### **What should people do if they get a letter or package containing, or contaminated with, a suspicious powdery substance?**

See the flow chart beginning on the next page. **Note that if the suspicious powdery substance is found to be in or on some other item besides a letter or package (e.g., a surface where mail is opened), the same general procedures should be followed.**

**Actions to Be Taken Following Identification of a Letter or Package Which Could Potentially Contain or Be Contaminated With a Hazardous Substance**

**Initial Actions if at Home**

1. Do not shake or empty the contents of any suspicious package or envelope.
2. Do not carry the package or envelope, show it to others, or allow others to examine it.
3. Put the package or envelope down on a stable surface; do not sniff, touch, taste, or look closely at it or at any contents that may have spilled.
4. Alert others in the area about the suspicious package or envelope. Leave the area, leaving interior doors open, and take actions to prevent others from entering the area. If possible, shut off the ventilation system.
5. Wash hands (and other potentially exposed skin areas) with soap and water to prevent spreading potentially infectious, toxic, or radioactive material to additional areas of the skin. Seek further instructions for exposed or potentially exposed persons.
6. Contact the local law enforcement agency.
7. Create lists of persons who were in the room or area when the suspicious letter or package was recognized, and lists of persons who also may have handled the letter or package. Give these lists to law enforcement officials and, if they become involved, to local or state public health authorities.

**Initial Actions if at Work**

1. Do not shake or empty the contents of any suspicious package or envelope.
2. Do not carry the package or envelope, show it to others, or allow others to examine it.
3. Put the package or envelope down on a stable surface; do not sniff, touch, taste, or look closely at it or at any contents that may have spilled.
4. Alert others in the area about the suspicious package or envelope. Leave the area, leaving interior doors open, and take actions to prevent others from entering the area. If possible, shut off the ventilation system.
5. Wash hands (and other potentially exposed skin areas) with soap and water to prevent spreading potentially infectious, toxic, or radioactive material to additional areas of the skin. Seek further instructions for exposed or potentially exposed persons.
6. Notify a supervisor, security officer, or local law enforcement official. (Ensure local law enforcement officials are contacted.)
7. If possible, create lists of persons who were in the room or area when the suspicious letter or package was recognized, and lists of persons who also may have handled the letter or package. Give these lists to law enforcement officials and, if they become involved, to local or state public health authorities.

**Local Law Enforcement Agency**

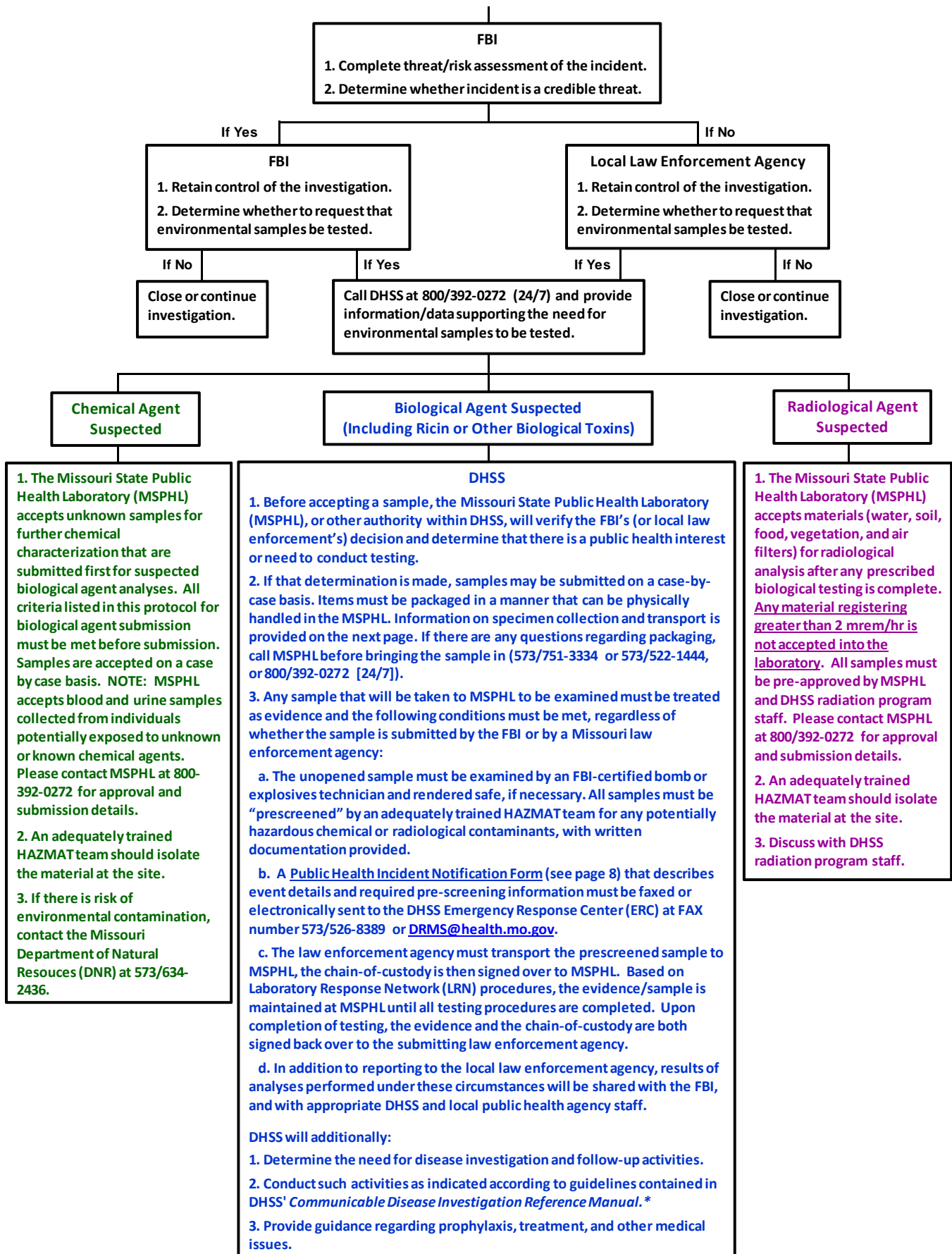
1. Begin investigation and determine the nature of the threat.
2. The FBI must be notified before any specimen is delivered to a public health laboratory.
3. Determine whether the item might contain or be contaminated with a hazardous substance.

If Yes

1. Secure the area.
2. Contact appropriately trained HAZMAT team per standard procedures established for your local area.
3. Notify the regional office of the FBI and ask for the regional Weapons of Mass Destruction (WMD) Coordinator or designee. Phone numbers are:
  - a. Eastern MO – St. Louis Regional Office – 314/231-4324
  - b. Western MO – Kansas City Regional Office – 816/512-8200 (Joplin)
  - c. Central MO – Jefferson City Area Office – 573/636-8814 (St. Joseph, Springfield)
4. Notify the local public health agency (see local number), or the Missouri Department of Health and Senior Services (DHSS) at 800/392-0272 (24/7).
5. Start a list of names and telephone numbers for all persons who may have handled the letter or package, or otherwise been exposed to the suspicious material.
6. Notify persons who have handled the item to place all contaminated clothing worn when in contact with the item into plastic bags to be made available to local law enforcement, if needed. Instruct these persons to shower as soon as possible.

If No

Close or continue investigation.



\*DHSS' *Communicable Disease Investigation Reference Manual* is available at:  
<http://www.health.mo.gov/living/healthcondiseases/communicable/communicabledisease/cdmanual/index.php>.

**Environmental Specimens for Biological Analysis: Collection and Transport**  
(Includes Any Sample NOT From Clinical Sources)  
Missouri Department of Health and Senior Services (800) 392-0272 (24 hours a day – 7 days a week)  
State Public Health Laboratory (573) 751-3334 or (573) 522-1444

For further information, see the Missouri State Public Health Laboratory website:  
<http://health.mo.gov/lab/index.php>

Remember that these samples may be highly infectious or toxic! Extreme caution should be taken in collecting, preparing for shipment, and transporting any material suspected of being contaminated with a biological or toxic agent.

**NOTE: Environmental samples will only be accepted from a law enforcement agency, and the FBI must be, or have been, involved. Each sample can be no larger than 12 inches by 36 inches (including packaging). For larger samples, consult the Missouri State Public Health Laboratory (MSPHL) before submitting.**

Samples may include paper, water, dry non-cotton swab samples from air vents or other surfaces, powders, soil, or other environmental samples. Only liquid samples need to be kept cold. All other samples can be transported at room temperature.

Environmental specimens received by MSPHL must be accompanied by paper documentation which includes the following:

1. Agency name and telephone number, and a contact person, for the submitting law enforcement organization along with chain of custody papers.
2. A **Public Health Incident Notification Form** (see page 8) that describes event details, and that the sample has been “prescreened” by an FBI-certified bomb or explosives technician and an adequately trained HAZMAT team, must be faxed or electronically sent to the DHSS Emergency Response Center (ERC) at FAX # 573-526-8389 or [DRMS@health.mo.gov](mailto:DRMS@health.mo.gov).

The sample being submitted should only be the suspect material. Additional items from the area that are suspected of being exposed should be bagged and held until testing is complete. For example, if a suspicious package/letter is received in a post office, only the suspicious package/letter should be brought to MSPHL for testing. All accompanying pieces of mail and the mail bag or letter tray should be bagged in plastic until testing of the suspicious package/letter is completed. Arrangements for where and how that material will be held are the responsibility of the investigating officials.

The specimen must be transported in a container that MSPHL personnel are able to open within a safety cabinet. This would include plastic bags or other devices that can be easily opened. This does not include sealed plastic buckets, etc.

MSPHL is unable to accommodate investigation-derived waste. If the HAZMAT team has collected the specimen, they should package their waste in a separate container from the specimen. Disposal of investigation-derived waste is the responsibility of the HAZMAT team.

### **Reporting Times:**

**All reporting times are the minimum time. Any individual specimen could take longer.**

#### **Anthrax**

For environmental specimens, negatives could be reported in 24 hours if there is no suspicious growth. However, any suspicious growth would need to be investigated and could delay the reporting of negative results.

A specimen could be reported "presumptive positive" in 4-6 hours after receipt of the specimen, with complete identification and positive confirmation at 5 days.

#### **Ricin**

Presumptive results, either positive or negative, could be available in 3-4 hours after receipt of the specimen.

## General Guidance for Managing Persons Who Have Had Exposure to an Unknown Powdery Substance

1. Persons exposed to a suspicious powdery substance should wash their hands with soap and water to prevent spreading potentially infectious, toxic, or radioactive material to other areas of the skin. If other areas of the skin (e.g., face, arms) have been exposed, they should be similarly washed.
  - a) If the initial evaluation of the incident finds evidence of significant risk of exposure to a hazardous substance (e.g., anthrax spores, ricin), exposed persons should, as soon as practical, remove contaminated clothing and store in labeled plastic bags (handling the clothing as little as possible to avoid agitation), and shower thoroughly with soap and water. A more detailed description of this process is described in the box below. Although this description was taken from a Centers for Disease Control and Prevention (CDC) ricin document, it provides, in general, a reasonable series of steps to take regardless of the nature of the suspicious material.

- Removing your clothing:
  - Quickly but carefully (to avoid agitation) take off clothing that may have the potentially hazardous material on it. Any clothing that has to be pulled over the head should be cut off the body instead of pulled over the head.
  - If you are helping other people remove their clothing, try to avoid touching any contaminated areas, and remove the clothing as quickly as possible while taking care to avoid agitation.
- Washing yourself:
  - As soon as possible, wash any potentially hazardous material from your skin with large amounts of soap and water.
  - If your eyes are burning or your vision is blurred, rinse your eyes with plain water for 10 to 15 minutes. If you wear contacts, remove them and put them with the contaminated clothing. Do not put the contacts back in your eyes (even if they are not disposable contacts). If you wear eyeglasses, wash them with soap and water. You can put your eyeglasses back on after you wash them.
- Disposing of your clothes:
  - After you have washed yourself, carefully place your clothing inside a plastic bag. Avoid touching contaminated areas of the clothing. If you can't avoid touching contaminated areas, or you aren't sure where the contaminated areas are, wear rubber gloves, turn the bag inside out and use it to pick up the clothing, or put the clothing in the bag using tongs, tool handles, sticks, or similar objects. Anything that touches the contaminated clothing should also be placed in the bag. If you wear contacts, put them in the plastic bag, too.
  - Seal the bag, and then seal that bag inside another plastic bag. When finished, wash your hands with soap and water. Disposing of your clothing in this way will help protect you and other people from any potentially hazardous material that might be on your clothes.
  - When the local or state health department or emergency personnel arrive, tell them what you did with your clothes. The health department or emergency personnel will arrange for further disposal. Do not handle the plastic bags yourself.

- b) If the initial evaluation of the incident does not find evidence of significant risk of exposure to a hazardous substance, then individuals may, when they go home, shower with soap and water, and wash their clothing in the normal manner using laundry detergent.
2. Asymptomatic persons exposed to an unknown powdery substance should not be started on prophylactic medications unless there is specific evidence that the substance contains a particular agent (e.g., anthrax) for which prophylactic drugs would be recommended. If law enforcement personnel evaluate the incident and believe it to represent a credible threat, the substance can be tested and, if the results are positive, any necessary prophylaxis can quickly be instituted. Beginning a prophylactic drug regimen prior to receiving positive laboratory results should only be considered if there is specific evidence that a particular agent, for which prophylaxis is indicated, is likely to have been present in the powdery material.
3. If evaluation of the incident by law enforcement personnel indicates the absence of a credible risk, and no environmental testing is done, prophylactic medications would not be indicated.



4. If an exposed person begins to demonstrate signs/symptoms of illness, he/she should promptly contact a medical provider, and should be sure to mention the powder exposure to the provider. If the individual is going to a medical facility (such as an emergency room), the facility should be contacted in advance if there is any possibility the person may currently have contamination on his/her skin or clothing. Also, one resource that may be helpful in some situations is the Missouri Poison Center at 800-222-1222.

When a medical provider is evaluating an individual who has been (or potentially been) in contact with a suspicious powdery substance, the following should be considered:

- a. If the signs/symptoms are consistent with those seen in early-stage inhalational anthrax (e.g., fever, cough, headache, nausea/vomiting, fatigue, muscle aches, sweating, chest discomfort), and no environmental laboratory results are available, then a decision must quickly be made as to whether to begin treatment for anthrax. This decision must take into account the signs/symptoms, their onset in relation to the time of exposure, and the probability (as best can be determined) that the substance might contain anthrax spores. Clinicians caring for such patients should consult with public health officials and, as necessary, with infectious disease specialists. If it is concluded that the initiation of treatment is indicated, then the recommended regimen for treating anthrax disease (which differs from the prophylaxis regimen) should be used, and treatment should begin immediately (a delay in initiating proper antibiotic treatment in patients with early-stage inhalational anthrax will substantially lessen the chances for survival). If, as a result of laboratory testing, it is subsequently found that the individual was not exposed to anthrax spores, and does not have anthrax, then the treatment regimen can be discontinued or modified as necessary.
  - b. Signs/symptoms seen in early ricin poisoning by inhalation (difficulty breathing, fever, cough, nausea, chest tightness) can be generally similar to those seen in early inhalational anthrax. In a patient with ricin poisoning, proper supportive medical care should be provided (no specific prophylaxis or treatment for ricin is available). This can include appropriate respiratory support (oxygen, intubation, ventilation, PEEP, and hemodynamic monitoring) and treatment for pulmonary edema, as necessary.
  - c. If signs/symptoms suggest other etiologies, then the patient should be managed as clinically appropriate, taking into consideration other potential terrorist agents that might have been present in the powdery material, as well as other causes for the patient's disease that are unrelated to the powder exposure or a potential terrorist act. Consultation should be obtained from relevant clinical specialists, as well as from public health officials.
5. If the suspicious powdery substance is found to contain anthrax spores, all individuals potentially exposed to aerosolized spores should be offered prophylactic antibiotics as quickly as possible (the prophylactic regimen will also include a three-dose anthrax vaccine regimen, but this does not have to be initiated immediately). Public health officials will be involved in investigating the extent of the exposures, and will provide recommendations as to which specific persons should be offered prophylaxis. All persons receiving prophylaxis should be provided education on anthrax disease and its signs/symptoms. They should be told to contact a medical provider immediately if they develop signs/symptoms consistent with early anthrax disease. Persons with exposure to anthrax spores who develop such signs/symptoms should immediately be started on an anthrax treatment regimen. For specific clinical guidance, see CDC's anthrax prevention and treatment recommendations at <https://www.cdc.gov/anthrax/resources/recommendations/index.html>. Additional prophylaxis and treatment recommendations may be made once additional information is available.
  6. If the substance is found to contain ricin, all exposed persons should be provided education on ricin poisoning and its signs/symptoms. They should be told to contact a medical provider immediately if they develop signs/symptoms consistent with such poisoning, and they should inform the provider of their exposure to ricin. Information and guidance on ricin for clinicians is available from CDC at <https://emergency.cdc.gov/agent/ricin/clinicians/index.asp>.
  7. No screening tests are available for the detection of either anthrax infection or ricin exposure in an asymptomatic person. Nasal swab cultures should not be used to diagnose cases of anthrax or to evaluate whether a person has been exposed. Nasal swab cultures may, in some instances, be utilized by public health researchers conducting an investigation of an anthrax attack.
  8. More information for medical and public health professionals on anthrax, ricin, and other biological, chemical, and radiological terrorist threats is available on DHSS's Disaster and Emergency Planning website at <http://health.mo.gov/emergencies/index.php>. Information for the general public is also available on this site.

**Public Health Incident Notification Form**  
**Notify: Missouri Department of Health & Senior Services**  
**Emergency Response Center (ERC)**  
**Fax: 573/526-8389      Phone: 800/392-0272**

<b>Date:</b>	<b>Phone:</b>
<b>Contact Person:</b>	
<b>From:</b>	<b>Agency:</b>
<b>Submission to State Public Health Laboratory: (yes or no)</b>	
<b>Item(s) being submitted:</b>	<b>Number of samples:</b>
<b>Common name of substance/material (if known):</b>	
<b>Form of Material:</b> <input type="checkbox"/> Powder <input type="checkbox"/> Solid <b>Color</b> _____  <input type="checkbox"/> Liquid <input type="checkbox"/> Other _____ <b>Triple Bagged (yes or no)</b>	
<b>Screening measures: (P = Positive, N = Negative, NC = Not Conducted)</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>Chemical corrosivity</b>  <div style="display: flex; justify-content: space-around; font-size: small;"> <span>P</span> <span>N</span> <span>NC</span> </div> </div> <div style="width: 45%;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>Volatile Organics</b>  <div style="display: flex; justify-content: space-around; font-size: small;"> <span>P</span> <span>N</span> <span>NC</span> </div> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>Radiological</b>  <div style="display: flex; justify-content: space-around; font-size: small;"> <span>P</span> <span>N</span> <span>NC</span> </div> </div> <div style="width: 45%;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>Other</b> _____  <div style="display: flex; justify-content: space-around; font-size: small;"> <span>P</span> <span>N</span> <span>NC</span> </div> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>Bomb tech screened (if unopened)</b>  <div style="display: flex; justify-content: space-around; font-size: small;"> <span>P</span> <span>N</span> <span>NA</span> </div> </div> </div>	
<b>Name of Chemical or Radiological isotope (if Positive)</b> _____	
<b>Name(s) of screening agency:</b>	
<b>Date and time found:</b>	
<b>Place found:</b>	
<b>City:</b>	<b>County:</b>
<b>Threat assessment: (circle one)</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> 1. Low threat – no exposure  3. Moderate/High threat – no exposure </div> <div style="width: 45%;"> 2. Low threat – exposure  4. Moderate/High threat - exposure </div> </div>	
<b>Number of people directly exposed to threat:</b>	
<b>Specific threat information:</b>	
<b>Decon Measures:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Health intervention underway/recommended/Initiated?	
<b>Health Protective Measures:</b> <input type="checkbox"/> Isolation <input type="checkbox"/> Evacuation <input type="checkbox"/> Quarantine <input type="checkbox"/> Shelter in Place  <input type="checkbox"/> Prophylaxis <input type="checkbox"/> Not needed <input type="checkbox"/> N/A <input type="checkbox"/> Other: _____	
<b>Local Public Health Agency notified:</b> <input type="checkbox"/> Yes (please list) _____ <input type="checkbox"/> No	
<b>Specific request/Special instructions from FBI</b>	



## **24-Hour Emergency Numbers**

<b>Missouri Information Analysis Center (MIAC)</b>	<b>866-362-6422</b>
<b>Missouri State Emergency Management Agency (SEMA)</b>	<b>573-751-2748</b>
<b>Missouri Department of Natural Resources (DNR) Spill Line</b>	<b>573-634-2436</b>
<b>Missouri State Highway Patrol (MSHP)</b>	<b>800-525-5555</b>
<b>Missouri Poison Center</b>	<b>800-222-1222</b>
<b>Missouri Department of Health and Senior Services</b>	<b>800-392-0272</b>

# Health Advisory:

## Recent Attacks With WannaCry Ransomware: Prevention and Remediation

May 18, 2017

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Health Advisory  
May 18, 2017

**FROM: RANDALL WILLIAMS, MD  
DIRECTOR**

**SUBJECT: Recent Attacks With WannaCry Ransomware: Prevention and Remediation**

A widespread ransomware campaign is affecting various organizations with reports of tens of thousands of infections in over 150 countries, including the United States. The software can run in as many as 27 different languages. The latest version of this ransomware variant, known as WannaCry, WCry, or Wanna Decryptor, was discovered the morning of May 12, 2017, and has spread rapidly. One possible infection vector is via phishing emails. In addition, according to news reports, it is already inspiring imitators.

Ransomware is a type of malicious software that infects a computer and restricts users' access to it until a ransom is paid to unlock it. Ransomware spreads easily when it encounters unpatched or outdated software. The WannaCry ransomware may be exploiting a vulnerability in Server Message Block 1.0 (SMBv1). Microsoft released a patch in March that addresses this specific vulnerability, and installing this patch will help secure your systems from the threat.

Specific steps for prevention and remediation from the Cyber Division of the Federal Bureau of Investigation (FBI) are shown in the Appendix.

For additional information on mitigation, users and administrators are encouraged to review the article from the United States Computer Emergency Readiness Team (US-CERT) on Microsoft SMBv1 Vulnerability (<https://www.us-cert.gov/ncas/current-activity/2017/03/16/Microsoft-SMBv1-Vulnerability>) and the Microsoft Security Bulletin MS17-010 (<https://technet.microsoft.com/library/security/MS17-010>).

For general advice on how to best protect against ransomware, review US-CERT Alert TA16-091A (<https://www.us-cert.gov/ncas/alerts/TA16-091A>). Please report any ransomware incidents to the Internet Crime Complaint Center (IC3) (<https://www.ic3.gov/default.aspx>).

Individual users are often the first line of defense against this and other threats, and everyone is encouraged to update his or her operating systems and implement vigorous cybersecurity practices at home, work, and school. These practices include:

- Update your systems to include the latest patches and software updates.
- Do not click on or download unfamiliar links or files in emails.
- Back up your data to prevent possible loss, whether you are at a home, work, or school computer.

#### Sources:

1. Indicators Associated With WannaCry Ransomware (FBI)  
[https://content.govdelivery.com/attachments/USDHSCIKR/2017/05/13/file\\_attachments/816377/FLASH\\_WannaCry\\_FINAL.PDF](https://content.govdelivery.com/attachments/USDHSCIKR/2017/05/13/file_attachments/816377/FLASH_WannaCry_FINAL.PDF)
2. DHS Statement on Ongoing Ransomware Attacks (DHS)  
<https://www.dhs.gov/news/2017/05/12/dhs-statement-ongoing-ransomware-attacks>
3. Multiple Ransomware Infections Reported (US-CERT)  
<https://www.us-cert.gov/ncas/current-activity/2017/05/12/Multiple-Ransomware-Infections-Reported>

## **Appendix**

### **Recommended Steps for Prevention**

- Apply the Microsoft patch for the MS17-010 SMB vulnerability dated March 14, 2017.
- Enable strong spam filters to prevent phishing e-mails from reaching the end users and authenticate in-bound e-mail using technologies like Sender Policy Framework (SPF), Domain Message Authentication Reporting and Conformance (DMARC), and DomainKeys Identified Mail (DKIM) to prevent e-mail spoofing.
- Scan all incoming and outgoing e-mails to detect threats and filter executable files from reaching the end users.
- Ensure anti-virus and anti-malware solutions are set to automatically conduct regular scans.
- Manage the use of privileged accounts. Implement the principle of least privilege. No users should be assigned administrative access unless absolutely needed. Those with a need for administrator accounts should only use them when necessary.
- Configure access controls including file, directory, and network share permissions with least privilege in mind. If a user only needs to read specific files, they should not have write access to those files, directories, or shares.
- Disable macro scripts from Microsoft Office files transmitted via e-mail. Consider using Office Viewer software to open Microsoft Office files transmitted via e-mail instead of full Office suite applications.
- Develop, institute and practice employee education programs for identifying scams, malicious links, and attempted social engineering.
- Have regular penetration tests run against the network, no less than once a year, and ideally, as often as possible/practical.
- Test your backups to ensure they work correctly upon use.

### **Recommended Steps for Remediation**

- Contact law enforcement. You are strongly encouraged to contact a local FBI field office upon discovery to report an intrusion and request assistance. Maintain and provide relevant logs.
- Implement your security incident response and business continuity plan. Ideally, organizations should ensure they have appropriate backups so their response is simply to restore the data from a known clean backup.

### **Defending Against Ransomware Generally**

Precautionary measures to mitigate ransomware threats include:

- Ensure anti-virus software is up-to-date.
- Implement a data back-up and recovery plan to maintain copies of sensitive or proprietary data in a separate and secure location. Backup copies of sensitive data should not be readily accessible from local networks.
- Scrutinize links contained in e-mails, and do not open attachments included in unsolicited e-mails.
- Only download software – especially free software – from sites you know and trust.
- Enable automated patches for your operating system and Web browser.

# Health Advisory:

## Misidentification of *Veillonella* as *Francisella tularensis* by Automated Microbial Identification System

June 5, 2017

This document will be updated as new information becomes available. The current version can always be viewed at <http://www.health.mo.gov>.

The Missouri Department of Health & Senior Services (DHSS) is now using 4 types of documents to provide important information to medical and public health professionals, and to other interested persons:

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Health Advisory  
June 5, 2017

FROM: RANDALL WILLIAMS, MD  
DIRECTOR

SUBJECT: **Misidentification of *Veillonella* as *Francisella tularensis* by Automated Microbial Identification System**

In the June 2, 2017, issue of the *Morbidity and Mortality Weekly Report (MMWR)*, the Office of Public Health Preparedness and Response at the Centers for Disease Control and Prevention (CDC) and the Idaho Division of Public Health reported the first published case of misidentification of *Veillonella* spp. as *Francisella tularensis* (a Tier 1 select agent\*) by an automated microbial identification system (AMIS). After the investigation of the initial laboratory report, it was determined that the infectious agent isolated from a nonprosthetic knee of a patient was *Veillonella* and not *F. tularensis*. This misidentification resulted in time-intensive response activities, use of prophylactic antibiotics by hospital staff members, and inappropriate targeted antibiotic therapy for the patient.

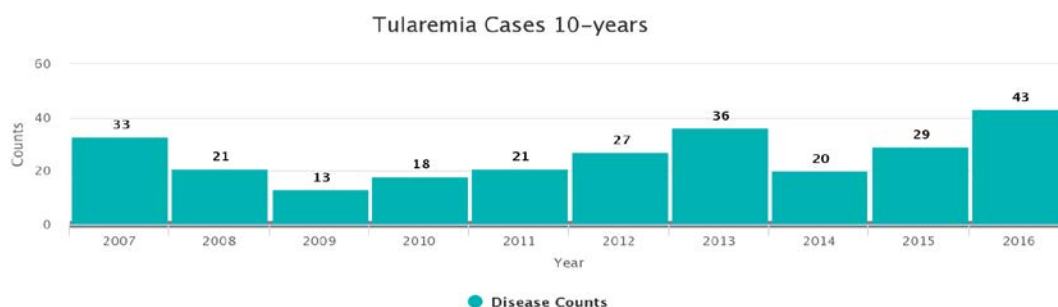
Clinical laboratories are advised **not** to use a commercial AMIS if a select agent is suspected in a clinical sample, and to consult with their Laboratory Response Network (LRN)-biologic laboratory for guidance and sample referral. Clinicians should consider *Veillonella* spp. when receiving laboratory reports of *F. tularensis* generated by AMISs. Antibiotic coverage for both *Veillonella* spp. and *F. tularensis* could be considered until final microbial identification is available.

### Background

Tularemia is a disease of animals and humans caused by the bacterium *F. tularensis*. Humans can become infected through several routes, including: tick and deer fly bites, skin contact with infected animals, ingestion of contaminated water, inhalation of contaminated aerosols or agricultural dusts, laboratory exposure, and when exposed as a result of bioterrorism.

Missouri is an endemic state for tularemia infection. In 2015, the incidence of tularemia per 100,000 population in Missouri was nearly 5 times that of the United States, 0.48 and 0.1, respectively. The annual number of tularemia cases in the U.S. between 2005 and 2015 ranged from 154 to 314, and a substantial portion of those cases were reported from Missouri (Figure 1).

Figure 1. Tularemia cases, Missouri, 2007-2016



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*Veillonella* spp. are small, slow-growing, nonmotile anaerobic Gram-negative cocci found as part of the normal flora of gastrointestinal, respiratory, and vaginal tracts. Although *Veillonella* spp. are classified as anaerobes, anaerobic organisms (including *Veillonella* spp.) have been observed growing in aerobic conditions for a limited time after isolation before becoming nonviable. Often considered contaminants of clinical specimen collection, *Veillonella* spp. have been rarely isolated from monomicrobial cultures of invasive infections. Predisposing factors for invasive infection might include local or systemic immune suppression and localized anaerobic conditions produced by tissue necrosis, diminished blood supply, or prolonged infection with aerobes.

The MMWR report describes a male patient aged >75 years with multi-year history of chronic unilateral knee pain requiring a series of intra-articular injections. The last injection occurred 15 days before he sought care at a hospital for a swollen knee. Gram staining of an intra-articular aspirate obtained that day from the affected knee showed Gram-variable cocci. The aspirate was cultured under aerobic and anaerobic conditions. Slow-growing colonies of Gram-negative cocci were observed from the anaerobic culture, with limited growth in aerobic conditions. Because an anaerobic AMIS panel was not available, isolates from the aerobic culture were processed for identification and antimicrobial susceptibility on the AMIS using a panel specific for aerobic organisms resulting in misidentification of *F. tularensis*.

Public health investigation determined no recent exposure by the patient to potential sources of naturally-occurring *F. tularensis*. Because of potential *F. tularensis* laboratory exposure, 19 laboratory staff members elected to start antibiotic prophylaxis while waiting for the confirmatory testing.

Using LRN real-time polymerase chain reaction methods, the Idaho Bureau of Laboratories tested the isolate for *F. tularensis* and *Brucella* spp.; no *F. tularensis* or *Brucella* spp. DNA was detected. Subsequent partial 16S ribosomal RNA (rRNA) gene sequencing identified a *Veillonella* spp. After identification of *Veillonella* spp., the patient's antibiotic regimen was changed, and personnel who were receiving prophylactic antibiotics were informed that continuation of prophylaxis was not recommended or necessary. The source of this patient's infection was not determined.

### **Missouri Department of Health and Senior Services (DHSS) Recommendations for Microbiology Laboratories and Healthcare Providers**

- Clinical laboratories are advised not to use a commercial AMIS if a select agent is suspected in a clinical sample.
- Consult with an LRN-biologic laboratory (Missouri State Public Health Laboratory [MSPHL]) for guidance and sample referral. MSPHL can be contacted at 573-751-3334 or 800-392-0272 (24/7).
- Clinicians should consider *Veillonella* spp. when receiving laboratory reports of *F. tularensis* generated by AMISs.
- Because *Veillonella* spp. are typically resistant to recommended or alternative antibiotic therapies for tularemia (i.e., streptomycin, gentamicin, tetracyclines, ciprofloxacin, and other fluoroquinolones), antibiotic coverage for both *Veillonella* spp. and *F. tularensis* could be considered until final microbial identification is available.

Questions should be directed to DHSS' Bureau of Communicable Disease Control and Prevention at 573/751-6113 or 800-392-0272 (24/7).

### **References**

1. Notes from the Field: *Veillonella* misidentified as *Francisella tularensis* – Idaho, 2016. *MMWR* 2017; 66(21);564-5.  
<https://www.cdc.gov/mmwr/volumes/66/wr/mm6621a4.htm>

2. Weber IB, Turabelidze G, Patrick S, Griffith KS, Kugeler KJ, Mead PS. Clinical recognition and management of tularemia in Missouri: a retrospective records review of 121 cases. *Clin Infect Dis* 2012; 55(10): 1283-90.

<https://academic.oup.com/cid/article/55/10/1283/323868/Clinical-Recognition-and-Management-of-Tularemia?searchresult=1>

**\*Tier 1 select agents are biologic agents and toxins that present the greatest risk for deliberate misuse with significant potential for mass casualties or devastating effects to the economy, critical infrastructure, or public confidence, and pose a severe threat to public health and safety.**



# Health Advisory:

## Nontuberculous Mycobacteria Cases Following Plastic Surgery in the Dominican Republic

August 22, 2017

This document will be updated as new information becomes available. The current version can always be viewed at <http://www.health.mo.gov>.

The Missouri Department of Health & Senior Services (DHSS) is now using 4 types of documents to provide important information to medical and public health professionals, and to other interested persons:

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Health Advisory  
August 22, 2017

**FROM: RANDALL W. WILLIAMS, MD, FACOG  
DIRECTOR**

**SUBJECT: Nontuberculous Mycobacteria Cases Following Plastic Surgery in the Dominican Republic**

The Missouri Department of Health and Senior Services (DHSS) has received multiple reports of nontuberculous *Mycobacteria* (NTM) infections in individuals who have undergone plastic surgery in the Dominican Republic. The Centers for Disease Control and Prevention (CDC) has received similar reports from other state and city health departments since January 2017. The purpose of this DHSS Health Advisory is to alert healthcare providers of the cluster of cases, request that similar cases be reported to DHSS, and provide guidance on laboratory testing.

### Background

NTM are ubiquitous and found in water, soil, dust, food, and other environmental sources. The organism can enter the body through ingestion, aspiration, or inoculation from an environmental source. There is no evidence of person-to-person transmission. Clinical symptoms depend on the organism and the location of infection, but are usually chronic and progressive. Treatment of NTM infections typically requires strong antibiotics administered for an extended period of time.

Symptoms of surgical site infections caused by NTMs can include pain, redness and swelling at the incision site, drainage of fluid or pus, chills, fever, myalgia, and malaise. Symptom onset is most likely within one month of surgery.

*Mycobacterium* species associated with plastic surgery in the Dominican Republic include *M. abscessus* and *M. massiliense*.

### Laboratory Testing

Nontuberculous *Mycobacteria* are rapidly growing and typically grow well on routine bacterial culture media; however, recovery of the organism from patients on empiric antimicrobial therapy may be hindered. Some patients with these infections may have acid-fast bacilli (AFB) positive smears from pathology smears, but no organism recovered on culture.

Commonly used identification methods for NTM are HPLC, MALDI-TOF, and gene sequencing (16S, *rpoB* or *hsp65*). The Missouri State Public Health Laboratory (MSPHL) provides laboratory support for the speciation of NTM isolates recovered from processed clinical samples, and can facilitate submission of AFB-positive pathology samples to CDC for additional testing. It is possible that CDC may request isolates for further testing; consequently, clinical and reference laboratories are asked to retain these isolates from patients with a history of plastic surgery in the Dominican Republic.

**Reporting**

Healthcare providers are asked to report suspected NTM infections in patients who have undergone plastic surgery in the Dominican Republic to DHSS at 573/751-6113, or 800/392-0272 (24/7).

**Additional Information**

Nontuberculous Mycobacteria in Medical Tourists to the Dominican Republic (CDC)  
<https://wwwnc.cdc.gov/travel/notices/alert/medical-tourism-dominican-republic>

## Health Advisory:

**Advice for Health Care Providers Treating Patients In or Recently Returned From Hurricane-Affected Areas**

**October 25, 2017**

This document will be updated as new information becomes available. The current version can always be viewed at <http://www.health.mo.gov>.

The Missouri Department of Health & Senior Services (DHSS) is now using 4 types of documents to provide important information to medical and public health professionals, and to other interested persons:

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**Health Advisory**  
**October 25, 2017**

**FROM: RANDALL W. WILLIAMS, MD, FACOG  
DIRECTOR**

**SUBJECT: Advice for Health Care Providers Treating Patients In or Recently Returned From Hurricane-Affected Areas**

On October 24, 2017, the Centers for Disease Control and Prevention (CDC) issued a Health Advisory containing recommendations for health care providers who are seeing patients that have recently returned from areas impacted by hurricanes, such as Puerto Rico and the US Virgin Islands (USVI). The following is a slightly edited version of this Health Advisory which includes information specific to Missouri.

### Summary

CDC is working with federal, state, territorial, and local agencies and global health partners in response to recent hurricanes. CDC is aware of media reports and anecdotal accounts of various infectious diseases in hurricane-affected areas, including Puerto Rico and USVI. Because of compromised drinking water and decreased access to safe water, food, and shelter, the conditions for outbreaks of infectious diseases exist.

The purpose of this Health Advisory is to remind clinicians assessing patients currently in or recently returned from hurricane-affected areas to be vigilant in looking for certain infectious diseases, including leptospirosis, dengue, hepatitis A, typhoid fever, vibriosis, and influenza.

### Background

Hurricanes Irma and Maria made landfall in Puerto Rico and USVI in September 2017, causing widespread flooding and devastation. Natural hazards associated with the storms continue to affect many areas. Infectious disease outbreaks of diarrheal and respiratory illnesses can occur when access to safe water and sewage systems are disrupted and personal hygiene is difficult to maintain. Additionally, vector borne diseases can occur due to increased mosquito breeding in standing water; both Puerto Rico and USVI are at risk for outbreaks of dengue, Zika, and chikungunya.

Health care providers and public health practitioners should be aware that post-hurricane environmental conditions may pose an increased risk for the spread of infectious diseases among patients in or recently returned from hurricane-affected areas; including leptospirosis, dengue, hepatitis A, typhoid fever, vibriosis, and influenza. The period of heightened risk may last through March 2018, based on current predictions of full restoration of power and safe water systems in Puerto Rico and USVI.

In addition, providers in health care facilities that have experienced water damage or contaminated water systems should be aware of the potential for increased risk of infections in those facilities due to invasive fungi, nontuberculous *Mycobacterium* species, *Legionella* species, and other Gram-negative bacteria associated with water (e.g., *Pseudomonas*), especially among critically ill or immunocompromised patients.

Cholera has not occurred in Puerto Rico or USVI in many decades and is not expected to occur post- hurricane.

### **Recommendations**

**These recommendations apply to healthcare providers treating patients in Puerto Rico and USVI, as well as those treating patients in the continental US who recently traveled in hurricane-affected areas (e.g., within the past 4 weeks), during the period of September 2017 – March 2018.**

- Health care providers and public health practitioners in hurricane-affected areas should look for community and healthcare-associated infectious diseases.
- Health care providers in the continental US are encouraged to ask patients about recent travel (e.g., within the past 4 weeks) to hurricane-affected areas.
- All healthcare providers should consider less common infectious disease etiologies in patients presenting with evidence of acute respiratory illness, gastroenteritis, renal or hepatic failure, wound infection, or other febrile illness. Some particularly important infectious diseases to consider include leptospirosis, dengue, hepatitis A, typhoid fever, vibriosis, and influenza.
- In the context of limited laboratory resources in hurricane-affected areas, health care providers should contact their territorial or state health department if they need assistance with ordering specific diagnostic tests.
- For certain conditions, such as leptospirosis, empiric therapy should be considered pending results of diagnostic tests— treatment for leptospirosis is most effective when initiated early in the disease process. Providers can contact the Missouri Department of Health and Senior Services (DHSS) or CDC for consultation.
- Missouri’s Disease Reporting Rule (19 CSR 20-20.020) requires all known or suspected cases of dengue, hepatitis A, or typhoid fever to be reported within one day to the local public health agency (LPHA) or to DHSS. All known or suspected cases of leptospirosis or vibriosis are required to be reported to the LPHA or to DHSS within three days. Prompt reporting facilitates public health investigation and, as appropriate, enhances the ability to mitigate the risk of local transmission.

Questions should be directed to DHSS’ Bureau of Communicable Disease Control and Prevention at 573/751-6113 or 800/392-0272 (24/7).

### ***For More Information***

- General health information about hurricanes and other tropical storms:  
<https://www.cdc.gov/disasters/hurricanes/index.html>
- Information about Hurricane Maria:  
[https://www.cdc.gov/disasters/hurricanes/hurricane\\_maria.html](https://www.cdc.gov/disasters/hurricanes/hurricane_maria.html)
- Information for Travelers:
  - Travel notice for Hurricanes Irma and Maria in the Caribbean:  
<https://wwwnc.cdc.gov/travel/notices/alert/hurricane-irma-in-the-caribbean>
  - Health advice for travelers to Puerto Rico:  
[https://wwwnc.cdc.gov/travel/destinations/traveler/none/puerto-rico?s\\_cid=ncezid-dgmq-travel-single-001](https://wwwnc.cdc.gov/travel/destinations/traveler/none/puerto-rico?s_cid=ncezid-dgmq-travel-single-001)
  - Health advice for travelers to the U.S. Virgin Islands:  
[https://wwwnc.cdc.gov/travel/destinations/traveler/none/usvirgin-islands?s\\_cid=ncezid-dgmq-](https://wwwnc.cdc.gov/travel/destinations/traveler/none/usvirgin-islands?s_cid=ncezid-dgmq-)

[travel-leftnav-traveler](#)

- Resources from CDC Health Information for International Travel 2018 (the Yellow Book):
  - Humanitarian Aid Workers: <https://wwwnc.cdc.gov/travel/yellowbook/2018/advising-travelers-with-specific-needs/humanitarian-aid-workers>
- Post-travel Evaluation: <https://wwwnc.cdc.gov/travel/yellowbook/2018/post-travel-evaluation/general-approach-to-the-returned-traveler>
- Information about infectious diseases after a disaster: <https://www.cdc.gov/disasters/disease/infectious.html>
  - Dengue: <https://www.cdc.gov/dengue/index.html>
  - Hepatitis A: <https://www.cdc.gov/hepatitis/HAV/index.htm>
  - Leptospirosis: <https://www.cdc.gov/leptospirosis/>
  - Typhoid fever: <https://www.cdc.gov/typhoid-fever/index.html>
  - Vibriosis: <https://www.cdc.gov/vibrio/index.html>
- Information about other infectious diseases of concern:
  - Conjunctivitis: <https://www.cdc.gov/conjunctivitis/>
  - Influenza: <https://www.cdc.gov/flu/index.htm>
  - Scabies: <https://www.cdc.gov/parasites/scabies/index.html>
  - Tetanus and wound management: <https://www.cdc.gov/disasters/emergwoundhcp.html>
    - Tetanus in Areas Affected by a Hurricane: Guidelines for Clinicians <https://emergency.cdc.gov/coca/cocanow/2017/2017sept12.asp>

## Health Advisory:

### Hepatitis A in a Restaurant Worker, Dexter, Missouri

December 18, 2017

This document will be updated as new information becomes available. The current version can always be viewed at <http://www.health.mo.gov>.

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Health Advisory  
December 18, 2017

FROM: RANDALL W. WILLIAMS, MD, FACOG  
DIRECTOR

SUBJECT: **Hepatitis A in a Restaurant Worker, Dexter, Missouri**

A case of hepatitis A was identified in a food handler who worked while potentially contagious at Huddle House in Dexter, Missouri. Exposure dates range from November 21, 2017 through December 2, 2017. The Missouri Department of Health and Senior Services (DHSS) distributed a news release to alert the public to the health risk due to this event. The news release is available at the following link: <http://health.mo.gov/information/news/2017/hepatitis121417>.

The purpose of this Health Advisory is to alert health care providers that patients may request testing or treatment related to exposure to the restaurant.

As is mentioned in the press release, it is important to note that a large, multistate outbreak of hepatitis A is ongoing that has affected the availability of hepatitis A vaccine. Information about this outbreak can be found at this link: <https://www.cdc.gov/hepatitis/outbreaks/2017March-HepatitisA.htm>.

All state health departments have been allotted an amount of vaccine they can order on a monthly basis. Additional vaccine may be ordered by state health departments in the event it is needed for outbreak response for post-exposure prophylaxis (PEP).

#### Post-Exposure Prophylaxis

PEP with either hepatitis A vaccine or immune globulin (IG) is recommended for certain individuals who have been exposed to hepatitis A virus. PEP should be administered as soon as possible after exposure **within 2 weeks after exposure**. Based on current evidence gathered in this investigation, the effective period for PEP expired on December 16, 2017.

Due to the limited availability of hepatitis A vaccine, health care providers are asked to thoroughly assess the exposure history of patients requesting evaluation for PEP because of an exposure at Huddle House in Dexter, Missouri. Additionally, it should be noted that hepatitis A vaccine and IG are not available from DHSS for restaurant patrons. Providers who utilize private hepatitis A vaccine doses should be aware that restocking may not be possible due to the aforementioned national shortage.

#### Case Reporting

Given the current situation in Missouri and nationwide, providers should consider hepatitis A as a possible diagnosis for patients with compatible symptoms. Hepatitis A is reportable within 1 day of knowledge or suspicion of the infection, per 19 CSR 20-20.020. Early diagnosis and reporting helps to ensure that contacts needing PEP are reached while it can still be effective at preventing disease following an exposure. Known or suspected cases of hepatitis A can be reported to the local public health agency, or to DHSS at 573-751-6113, or 800-392-0272 (24/7).



Questions should be directed to DHSS' Bureau of Communicable Disease Control and Prevention at 573-751-6113 or 800-392-0272 (24/7).

**Additional Information**

Hepatitis A Questions and Answers for Health Professionals (CDC)

<https://www.cdc.gov/hepatitis/hav/havfaq.htm>

Updated Dosing Instructions for Immune Globulin (Human) GamaSTAN S/D for Hepatitis A Virus Prophylaxis (CDC, September 15, 2017)

<https://www.cdc.gov/mmwr/volumes/66/wr/mm6636a5.htm>